

THE SEPARATION AND IDENTIFICATION OF SMALL JUVENILES OF
THE SPECIES *VELACUMANTUS AUSTRALIS* AND *PYRAZUS EBENINUS*
(GASTROPODA: POTAMIDIDAE)

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Pls. 5-7.

Velacumantus australis (Quoy and Gaimard) and *Pyrazus ebeninus* (Bruguière) are often found living together in estuarine lakes (O'Gower, 1964). These two species are closely related and in the past have been placed in the same genus. Difficulty has been experienced in separating and identifying the small juveniles of these two species (Ewers, 1963).

As a result of a careful examination of a range of juveniles of both species, collected at various times during the past year from the same area of Lake Burril, and comparison with larger juveniles, the small juveniles of these two species can now be separated and identified.

The diagnostic characteristics of the juveniles of the two species are as follows:

1. *Ridges at bottom of growing whorl*

When viewed end on, *P. ebeninus* has two marked ridges at the bottom of the growing whorl. The region between these two main ridges is smooth, and of uniform colour. *V. australis* has a number of smaller

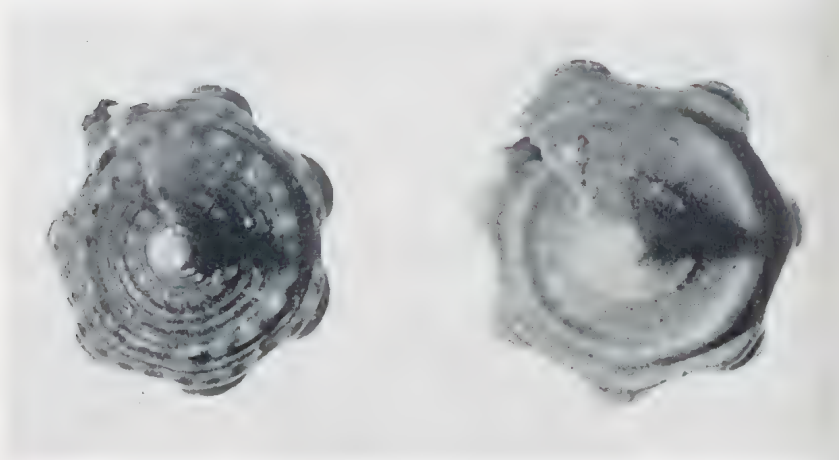


PLATE 5

Juveniles of the two species viewed end on to show differences in shell sculpture: left, *Velacumantus australis*; right, *Pyrazus ebeninus*.

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ridges in addition to the two main ones and these are often variegated with areas of light and dark, which gives the ridges of the growing whorl a spotted appearance (Pl. 5).

These differences are most obvious when viewed under magnification (x8).

2. Angle of the spire

The angle of the spire of *V. australis* is greater than that of *P. ebeninus*, i.e., *P. ebeninus* is long and thin in comparison with *V. australis*. Juveniles are readily sorted on this basis, but without confidence. The angle of the spire of samples of all age groups of both species was measured in the following way:

Specimens were placed on photographic plates which were then exposed to a point source of light several feet above them and enlarged prints were made of the resulting silhouettes. The angle of the spire was then ruled in and measured with a protractor. In older snails the whorls at the top of the spire are usually worn and care was taken when ruling lines to make them coincide with the edges of the unworn anterior whorls.

The results are summarised in Table 1. The ranges of the angles of the spire overlap considerably. However, the differences between the two species are highly significant (in both cases the probability is less than .005). The standard deviations of the *P. ebeninus* samples are considerably less than those for the *V. australis* samples. That is, the range of angles in *P. ebeninus* is smaller than that of *V. australis*.

3. Colour

The growing whorl of juvenile *P. ebeninus* tends to be a light brown colour while in *V. australis* it tends to be darker brown or grey. This difference is not constant, and when specimens are wet the colours of both species are very variable. Dry specimens can be sorted on the basis of colour, but one does not feel very confident about it.

4. Sculpturing on the shell

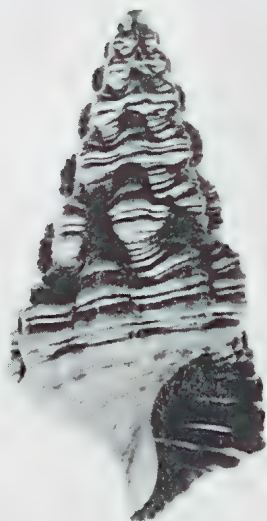
When unworn shells of both species are examined under a dissecting microscope, in good light, differences in the spiral striae can be seen (Pl. 6).

Both species have 6 main ridges or spiral striae to each whorl, but in the case of *V. australis* there are one or two minor ridges between the six major ones. These features are perhaps best seen by low power examination of impressions of the shells in plasticene (Pl. 7).

TABLE 1

<i>V. australis</i>				<i>P. ebeninus</i>		
Juveniles 11-15mm.	N	avg. angle	range	N	avg. angle	range
	50	37.92 $\pm$ 2.79	31 - 45	51	31.72 $\pm$ 1.84	28 - 35
Larger specimens (all ages)	47	34.34 $\pm$ 4.28	25 - 44	41	26.44 $\pm$ 2.56	21 - 33

Data on the angle of the spire of the two species (N = sample size).



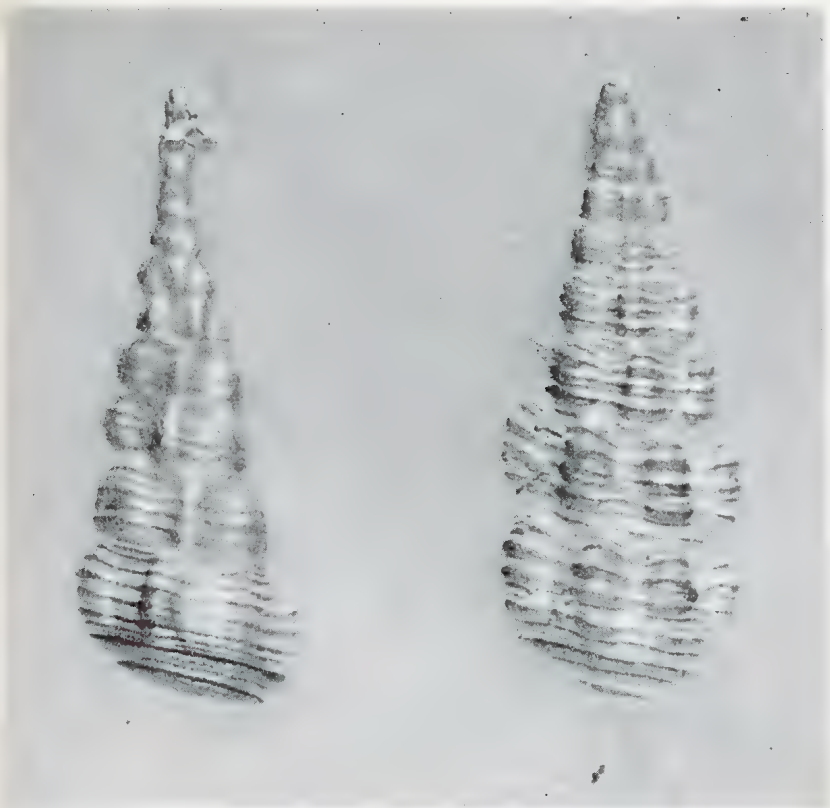


PLATE 7

Plasticine impressions of large juveniles of *P. ebeninus* (left) and *V. australis* (right). Note differences in shell sculpture, especially the minor ridges in *V. australis*.

REFERENCES

- EWERS, W. H., 1963. Some observations on the life cycle of *Velacumantus australis* (Quoy and Gaimard) (Gasteropoda: Potamididae). *J. Malac. Soc. Aust.*, 7:62-67.
- O'GOWER, K., 1964. Locomotion, dispersal and distribution of gastropod molluscs. *Aust. Nat. Hist.*, 14:391-394.

PLATE 6

Juveniles of the two species. Note differences in the angle of the spire and differences in sculpture. The knobs on *V. australis* (top) are larger than those of *P. ebeninus* (bottom) and in *V. australis* the minor ridges are more pronounced.